

Güralp CMG-6TD digital three-axis seismometer simplified installation guide and datasheet for 491L

Equipment list:



- The seismometer.
- The breakout box (which provides separate connections for the signal, control and power lines)
- A Güralp GPS receiver unit
- A 15 meter GPS cable, with six-pin bayonet connectors at both ends
- A power supply cable, with bare wires at one end and a ten-pin bayonet socket at the other
- Serial data cable, with a standard 9-pin D connector at one end and a 10-pin bayonet plug at the other



Step by step simplified field installation guide

- ✓ You will need access to a PC with a 9-pin serial port (Toughbook), and a 12V power source (marine battery).
- ✓ Use the power cable to connect the 10-pin power plug on the breakout box to the 12V power source. **RED to + & BLACK to –** Tighten down nuts to ensure a secure connection.
- ✓ Connect the 6-pin connector on the breakout box to the GPS unit using the GPS cable until it clicks to lock. Position the GPS so that it has a good view of the sky.
- ✓ **REMEMBER** 4 GPS satellites are required to communicate accurate location!
- ✓ Connect the wire from the breakout box to the 6TD's 19-pin connector until it clicks to lock.
- ✓ Connect the 6-pin data plug on the breakout box to the 9-pin serial port on PC using the serial cable.
- ✓ The instrument is now fully operational, and will already be producing data. **REMEMBER** a minimum of ~2 hours of data recording is required to produce acceptable interpretation.
- ✓ Double click the Scream 4.5 icon on the desktop to open.
- ✓ The main window is the control center for the program and the summary window is for the only important computer aspect for this intro to field installation.

Grey: Scream! Hasn't received any information from the instrument since the last reset.

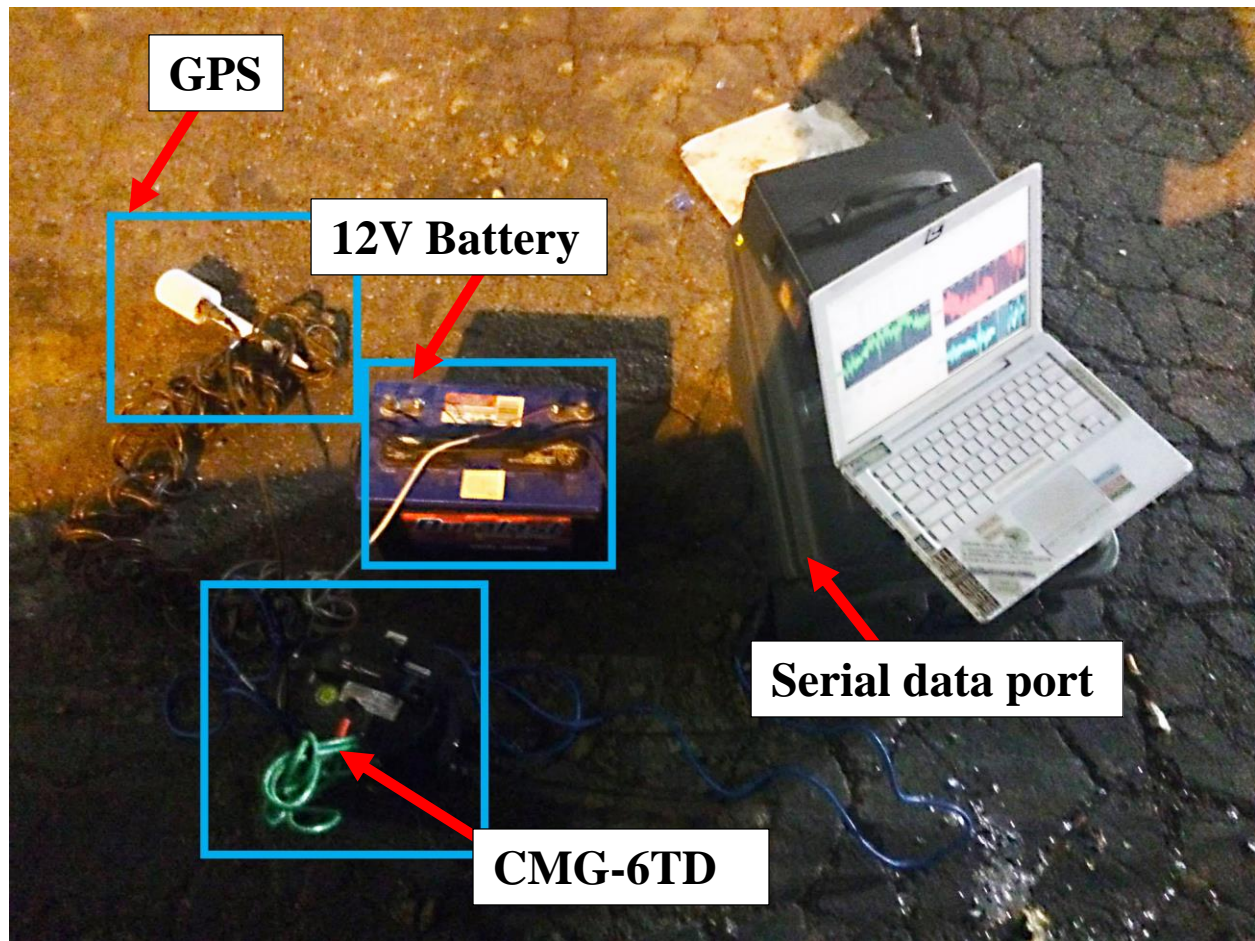
Green: The instrument has reported a satisfactory GPS timing fix, mass, age or error.

Yellow: The instrument has reported a gap in the data stream for the GPS timing fix, mass, age or error.

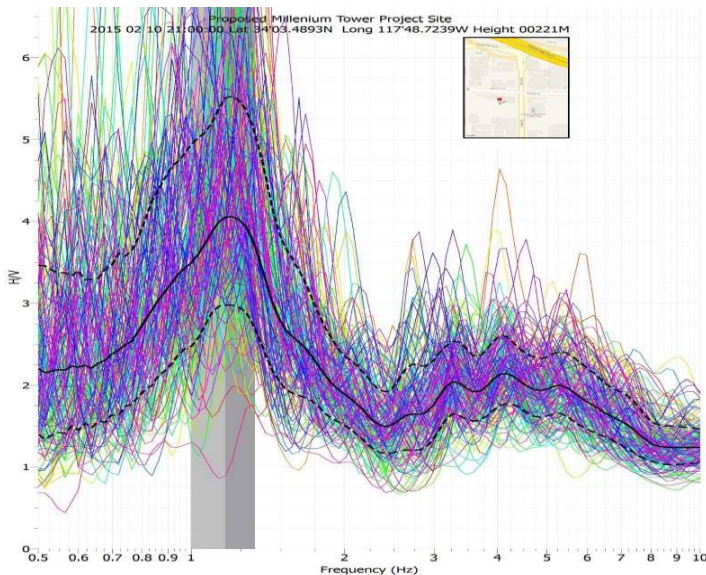
Red: The instrument has not reported a satisfactory timing fix GPS timing fix, mass, age or error.

All Green = All Signals good to disconnect and keep disturbance log for the duration of the experiment.

Example of complete urban installation for a 2hr seismic site characterization survey



Example of interpreted data using geopsy for this specific site.



1. The x-axis is frequency in Hz.
2. The y-axis is the H/V ratio.
3. Upper/Lower dashed lines represent the error range of the data.
4. The dual shaded vertical grey bar indicates the fundamental frequency.
5. Rule of thumb that 1Hz = 10 stories
6. At this site the frequency was about 1.15Hz with a corresponding 4X ground amplification.
7. **Capitol Records Building** is a 13-story high-rise building.
8. Conclusion: Significant ground motion cause by a rupture of the Hollywood Fault would decimate this iconic structure with little to no warning causing loss of life and extreme economic damage.

**Capitol Records Building (as destroyed
in *The Day After Tomorrow*)**
IT IS NOT IF BUT WHEN!!!

